REMARKS

Claims 1-36 are currently pending in the subject application and are presently under consideration. Claims 1, 19, 20, and 22 have been amended as shown on pages 2 to 8 of the Reply. Support for amendments to claims 1, 19, and 20 can be found at least in the Summary of the subject application. Applicants' representative appreciates courtesies extended by Examiner Bill Deane during the telephonic interview for the subject application conducted on February 26, 2009, where it was agreed that the claims as amended may overcome the presented rejections. Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

I. Rejection of Claims 1-10 and 12-36 Under 35 U.S.C. §103(a)

Claims 1-10 and 12-36 stand rejected under 35 U.S.C. §103(a) over Joseph, *et al.* (US 6,807,274), in view of Bala (US 6,798,876), and further in view of Muller (US 5,561,711). It is respectfully requested that this rejection be withdrawn for at least the following reasons. Joseph, *et al.*, Bala, and Muller, when taken alone or in combination, fail to disclose, teach, or suggest all elements recited in the subject claims.

> Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit. *See KSR v. Teleflex*, 550 U.S. ___, 127 S. Ct. 1727 (2007) *citing In re Kahn*, 441 F. 3d 977, 988 (CA Fed. 2006) ***("[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness***").
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> A factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning. See *KSR v. Teleflex*, 550 U.S. ___, 127 S. Ct. 1727 (2007) citing *Graham v. John Deere Co. of Kansas City*, 383 U. S. 1, 36 (warning against a "temptation to read into the prior art the teachings of the invention in issue" and instructing courts to "'guard against slipping into the use of hindsight'" (*quoting Monroe Auto Equipment Co. v. Heckethorn Mfg. & Supply Co.*, 332 F. 2d 406, 412 (CA6 1964))).

> "Under 35 U.S.C. 103 where the examiner has relied on the teachings of several references, the test is whether or not the references viewed individually and collectively would have suggested the claimed invention to the person possessing ordinary skill in the art. It is to be noted, however, that citing references which merely indicated that isolated elements and/or features recited in the claims are known is not a sufficient basis for concluding that the combination of claimed elements would have been obvious. That is to say, there should be something in the prior art or a convincing line of reasoning in the answer suggesting the desirability of combining the references in such a manner as to arrive at the claimed invention... [I]t would not have been obvious to modify [the prior art] ... without using [the patent application's] claims as a guide. It is to be noted that simplicity and hindsight are not proper criteria for resolving the issue of obviousness." *Ex parte Hiyamizu*, 10 USPQ2d 1393 (BPAI 1988).

The subject matter as claimed relates to automatically routing telephone calls in an interactive voice recognition system where the call can be routed according to a probability that routing the call will be more advantageous (or provide for a more likely successful call outcome) than continuing interactive voice recognition. The probability can be based at least in part on a decision model trained according to previous calls and sequences of action for the calls. Additionally, the probability can be based on comparing the current sequence of actions to those used in training a decision model. To this end, independent claim 1, as amended, recites in part an automated call routing system *comprising . . . a decision model, associated with the automated call routing component, that employs probability to* ***determine likelihood of success in providing the automated responses over automatically routing the incoming call to an operator****, the likelihood of success determined based in part on a sequence of system actions from the incoming call as compared to system actions of one or more previous calls and is re-determined for the incoming call after the occurrence of each system action from the incoming call, to mitigate transferring the incoming call to an operator.* Joseph, *et al.*, Bala, and Muller, when taken alone or in combination, fail to teach or suggest such claimed aspects.

Joseph, *et al.* relates to a system for routing calls from partially automated dialogs to fully automated dialogs. The system evaluates a probability that the fully automated dialog can solve a problem of a user; with high probability, the user is routed from a partially automated dialog to the fully automated dialog. Bala relates to a system for matching callers with customer service representatives having expertise in the caller's problem area. The system can use historical call information to determine which customer service representatives have high caller satisfaction for

certain factors and can choose the appropriate representative based on the factors. However, Joseph, *et al.* and Bala, alone or in combination, fail to teach or suggest ***determining likelihood of success in providing the automated responses over automatically routing the incoming call to an operator***, as recited in claim 1. The Examiner acknowledges that Joseph, *et al.* and Bala fail to teach or suggest *the likelihood of success determined based in part on a sequence of system actions from the incoming call as compared to system actions of one or more previous calls and is re-determined for the incoming call after the occurrence of each system action from the incoming call, to mitigate transferring the incoming call to an operator* on page 4 of the Office Action dated January 7, 2009, and offers Muller to cure this deficiency. Muller, however, is similarly deficient with respect to ***determining likelihood of success in providing the automated responses over automatically routing the incoming call to an operator***.

Muller discloses a system for routing phone telephone calls to telephone agents. Based on an automated dialog system interaction with the user, the system in Muller selects agents to handle the user's call. In the sections cited in the Office Action, Muller discloses a trigger event detector that can collect information regarding the agent and the call. (*See*, column 3, line 60 to column 4, line 7). Using this information, likelihood of availability of given agents for handling the call can be calculated. Muller discloses evaluating information such as current time of a call, time spent with the dialog, and average time of a given agent to calculate an expected time for answering the call. Muller fails to teach or suggest, however, ***determining likelihood of success in providing the automated responses over automatically routing the incoming call to an operator***, as recited in claim 1.

To the contrary, Muller contemplates computing a likelihood of an agent answering a call in a given period of time. This is not indicative of determining a likelihood of success in providing automated responses versus transferring a call to an operator, as generally recited in claim 1. Rather such a likelihood recited in applicants' claims can be used to determine when to transfer a call to an operator (or holding queue) from an automated dialog based on whether continuing to use the dialog will likely result in a successful call, and not for computing a wait time before an agent answers the phone as in Muller. For at least these reasons, Muller fails as well to teach or suggest ***determining likelihood of success in providing the automated responses over automatically routing the incoming call to an operator***, as recited in claim 1.

Moreover, dependent claims 13-17 further emphasize the aforementioned novel features discussed above regarding the independent claims. In particular, claim 13 recites *the decision model includes at least one probabilistic model to* ***perform at least one dynamic decision associated with costs and benefits of shifting a caller to a human operator***; claim 14 recites *the at least one probabilistic* ***model provides at least one prediction about an outcome to enable administrators of automated call routing systems to specify preferences regarding the transfer of callers to a human operator***; claim 15 recites *the preferences are represented as a* ***tolerated threshold on failure as a function of a current expected time that callers have to wait for a human operator****, given a current load on operators*; claim 16 recites *the decision model is employed to* ***facilitate staffing decisions by taking into consideration at least one of probabilistic performance of an automated system*** *to route calls successfully, preferences about wait time, characterization of caller volumes, or time required for addressing callers in a queue waiting for an operator*, and claim 17 recites ***the queue is optimized based on a queue-theoretic formulation***. It is readily apparent from the foregoing discussion that the cited art does not disclose or suggest the above-noted aspects recited in the respective dependent claims regarding the decision model.

Furthermore, claim 19, as amended, recites similar aspects as claim 1, namely *means for* ***determining probability of success in providing automated responses to the caller in response to one or more system actions associated with the call as compared to automatically directing the caller to the user****, the probability of success determined based in part on a sequence of the one or more system actions associated with the call, the probability of success is re-determined after each system action*. As shown, Joseph, *et al.*, Bala, and Muller, when taken alone or in combination, fail to teach or suggest such aspects. Amended claim 20 similarly recites *employing probability to* ***determine likelihood of success in automatically directing a call to an organization member over providing automated responses during the call in response to one or more system actions associated with the call***. Joseph, *et al.*, Bala, and Muller, when taken alone or in combination, fail to teach or suggest such aspects, as shown with respect to claim 1.

Thus, it is readily apparent that Joseph, *et al.*, Bala, and Muller, when taken alone or in combination, fail to teach or suggest each and every element of claims 1, 19, and 20. Accordingly, rejection of these claims, as well as, claims 2-10, 12-18, and 21-36, which depend therefrom, should be withdrawn.

II. Rejection of Claim 11 Under 35 U.S.C. §103(a)

Claim 11 stands rejected under 35 U.S.C. §103(a) over Joseph, *et al.*, in view of Bala, in view of Muller, and further in view of Chittineni (US 4,747,054). It is respectfully requested that this rejection be withdrawn for at least the following reasons. Joseph, *et al.*, Bala, Muller, and Chittineni, when taken alone or in combination, fail to teach or suggest each and every element recited in the subject claim. In particular, Chittineni fails to cure the aforementioned deficiencies of Joseph, *et al.*, Bala, and Muller with respect to claim 1, from which claim 11 depends. For at least these reasons, this rejection should be withdrawn.

CONCLUSION

The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063 [MSFTP471US].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number below.

Respectfully submitted,

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